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(54) Title of the Invention: In-Vehicle Information Guide System

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Specifications

1. Title of the Invention

In-Vehicle Information Guide System

2. Patent Claims

(1) An in-company [sic] information guide system for broadcasting the displays of guide information about the next and/or later station stops in a traveling train comprising an information processor (A) which is provided in the train and compiles image information data as the information for broadcast on the train;

a transmitter (B) for distributing the created image information data as image information to each display device; and

a display device (C) installed in each car.

(2) The in-vehicle information guide system described in claim 1, wherein the image information data created as described above includes guide information about at least the name of the next station stop; expected arrival time; special express trains, express trains, departure times, destinations, and boarding platforms related to the first train or bus departing after the time of the specified transfer time added to the expected arrival time in the schedules for each route related to the transportation facilities of the current train company or other companies having connections at the next station stop.

(3) The in-vehicle information guide system described in claim 1 or 2, wherein said display device is installed in the upper part of a wall on the side of the aisle in the train, or above the window at each passenger seat.

3. Detailed Description of the Invention

Overview

In the past, the information guide in a train was by voice using in-company [sic] broadcast facilities based on the conductor rounds. However, since the voice is not preserved, the information cannot be provided no matter how many times it is repeated to passengers who were asleep or missed the announcement or passengers who forgot. Therefore, broadcasts using images are conducted to fix the deficiency of voice broadcasts. Alternately, both are used together.

Field of Industrial Application

The present invention relates to an information guide service system based on image broadcasts to passengers

riding on a traveling train, more particularly, to a system providing information services which do not disappear and can be viewed at any time within a prescribed time on a display device.

Problems of the Prior Art

Conventional information announcements were voice broadcasts to the passengers through speakers provided in each car bell [sic] by wire from a broadcast facility provided in the conductor's cab. However, since voice is fleeting and disappears, the weakness is that this information cannot be provided to passengers who need information and forgot or missed the information for whatever reason. The problem was the repetition of the broadcast to fix this weakness annoyed the other passengers.

Solution Means

The intent of the present invention is to provide information content in a visual guide as described above as image information broadcast (displayed) in each car and to preserve the information for a prescribed time to enable reading by passengers needing information at any time.

The structure of the hardware for realizing the above intent provides an information processor which a crew member manages, operates, and selects and compiles image information data, and a transmitter which distributes and broadcasts the image information data created (selected and compiled) on the processor to each display device as the image information at locations which can be managed by the crew member in the conductor cab on the train; and provides a solution by displaying and broadcasting the guide information needed by the passengers disembarking at the next station stop on the display devices provided on each side of the car.

If some information will be provided, the following operating conditions apply. The image information data created as the display content described above is displayed before stopping at the next station. The data is information related to transfers for connections, such as the station name, expected arrival time (desirably, updated if late), platform number which are required by passengers disembarking at the next station. The information is continuously displayed on the display devices installed at locations where the information can be selected from a diagram and is easily seen. In addition, the information is successively updated and provided until the next stop.

Embodiments

Figure 1 is a drawing for explaining one embodiment and also serves as a drawing of the principle of the present invention.

Figures 2, 3, and 4 are supplemental drawings of Figure 1. Figure 2 shows the operation for creating the image display data conducted on the information processor as an operation flow.

Figure 3 describes the input and compilation in a function block diagram.

Figure 4 shows the installation locations of the display devices.

The interior of part A delineated by the dot-dash lines in Figure 1 shows the information processor. The interior of part B shows the transmitter. The interior of part C shows the display device on each side of the car. Data buses 6 connect an information processor A which has an operating unit 2 including a monitor unit connected to a central processing unit 1 (referred to as a CPU); a main storage 3 (referred to as MS) which becomes the working area for data compilation where the data are compiled with CPU 1; and data files 4, 5 storing trip planning data of the train containing at least the planned departure time, names of the station stops, each station, departure platform number between each station from the starting station of the boarded train to the final station during the current trip, trip planning (train schedule) data of related connecting trains at each station stop including information about the departure time from each station, destination, and departure platform (terminal) of connecting trains departing from the stations where the boarded train stops (the term connecting trains includes ordinary trains, express trains, and special express trains which have a given route; ordinary trains, express trains, and special express trains which are traveling on different routes and headed in different directions; as well as trains, boats, and vehicles of transportation facilities such as buses having terminals at the station stop which connect at later stops), and source data containing at least various information needed for compilation which includes the required extra time information believed to be required to move between platforms and between platform terminals to make connections for each station stop of the boarded train.

After the operating unit 2 is operated and the train departs, Figure 3 shows one example of the set-up data indicated by the double line frames. Specifically, data for displaying the station name related to the station stop settings from the data files 4, 5 when the name of the next station stop (may be encoded) is set;

data for displaying the expected arrival time; data related to the departure times and platforms of connecting trains; and if needed, data related to the required extra time for connecting are retrieved and set for each setting in the MS 3 from the files 4, 5 by using the setting of the station name in the setting unit 31 of the name of the next station stop as the key. If there is a difference between the current train schedule and his expectations (running late), the operator compiles by revising and setting the arrival time, required extra time, and display item in each setting unit.

First, in the compilation, a comparator 36 compares the time of the required extra time for connecting in each direction set in the extra time setting unit 35 added to the arrival time setting unit 32 at the next station stop of the boarded train to the departure time data group of the connecting trains departing in each direction from the train schedule memory unit 34 which reads in only the needed part stored in file 5; selects the trains available for connection in each direction; and passes the trains to the train selection unit 37. Next, in order to compile the connection information data, the train selection unit 37 repeatedly compares the departure times, selects the train at the closest time for each train class of the trains available for connection which were selected by the comparator 36, and stores the information in the specified format location of the format and compilation unit 38 only for the needed directions.

Then, the name of the station stop, arrival time, and arrival platform related to the next station stop combined with data indicating the departure time, platform, destination, direction of the available connecting train in each direction and the data read from file 4 of associated data such as the train name, express or ordinary type, vehicle type such as train or bus are combined, formatted, and compiled to complete the compilation.

These operations, if needed, set and revise each monitor on the operating unit 2, and are executed primarily between the CPU 1 and the MS 3.

However, the image information data which have been compiled are transferred to the transmitter B which converts the data into image information for display on the display devices in each car and transmits the information. After conversion, the image information is broadcast from each of the display devices 21 to 2n as images.

Next, preferably, the display devices 21 to 2n are arranged on the walls flanking the aisles of each train or above the windows of the passenger seats at approximately the eye level of an average adult walking by.

In a variation of the present invention, when a train is late, if the change in the expected arrival time can be changed on the train, data compiled beforehand and supplied on a medium such as a disk cartridge or a floppy disk greatly lessens the operations performed by the crew member on the train. In addition, although the scale will become large, the compilation is conducted at a central command center which manages the train movements and can be provided on-line to each train. Nearly the same effect is obtained as a service received by the passengers, but the time the crew member needs to directly perform the operations becomes smaller, which is an advantage.

Effects

The present invention as described above has the following effects. Guide information having a depth of information can be provided at the time required by a passenger needing an information guide on the train in a form which does not the speed of the traveling train, and a more comprehensive service is available from the perspective of the operations.

4. Brief Description of the Drawings

Figure 1 is drawing for explaining an embodiment which also illustrates the principle of the present invention and describes the system structure.

Figures 2, 3, and 4 are supplementary drawings of Figure 1 which explain the operation flow of the embodiment as a flow, explain the function blocks, and show the display locations, respectively.

In the drawing, A indicates the information processor; B, the transmitter; and C, the display device. The assigned numbers indicate the detailed parts. Reference number 1 indicates the CPU; 2, the operating unit; 3, the main storage (MS); 4, 5, the data files; and 6, the paths. In addition, 11 indicates the setting unit of the compiled display data; 12, the image data conversion unit; 13, the transmitter; and 14, the display system controller.

disappear. Not only is there an improvement in the quality of the service which does not annoy passengers who do not need information compared to the operation based only on voice broadcasts, but an ability to revise as needed to match

Furthermore, 21, 22,..., 2n indicate the display devices in each car.

In addition, 31 indicates the setting unit of the name of the next station stop; 32, the arrival time setting unit; 33, the display item setting unit; 34, the schedule storage unit for temporarily storing a part of the schedule; 35, extra time setting unit; 36, the comparator; 37, the selector; and 38, the format and compilation unit.

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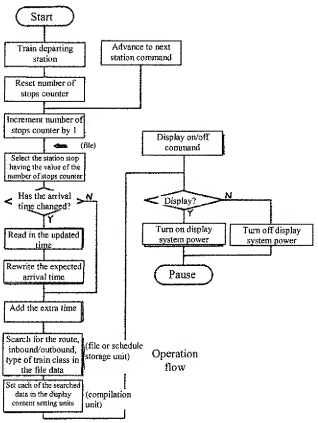
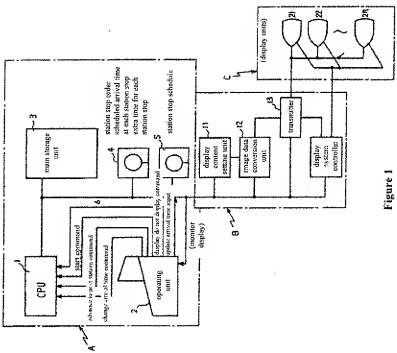
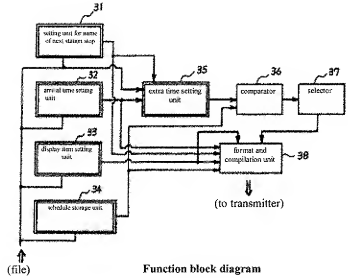
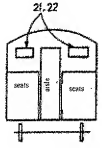


Figure 2





Function block diagram
Figure 3



Display locations
Figure 4